

REMARKS

Applicants appreciate the Examiner's thorough consideration provided to the present application. Claims 1-9 and 18-20 are currently pending in the instant application. Claims 1 and 18 are independent. Reconsideration of the present application is earnestly solicited.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 3, 4, 6, 18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hyde et al. (U.S. Patent No. 5,779,006) in view of Carew (U.S. Patent No. 2,013,948). Claims 1, 3, 4, 6, 18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Riebe (U.S. Patent No. 5,709,288) in view of Carew. Claims 1, 3, 4, 6, 18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hyde et al. (U.S. Patent No. 5,558,186) in view of Carew. Claims 1, 3, 4, 6, 18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Cook (U.S. Patent No. 3,712,427) in view of Carew. Claims 2, 5, 7-8 and 19 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over each of the combinations of Hyde et al. in view of Carew; Riebe in view of Carew; Hyde et al. in view of Carew; and Cook in view of Carew; and further in view of Pigford (U.S. Patent No. 4,982,818).

Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over each of the combinations of Hyde et al. in view of Carew; Riebe in view of Carew; Hyde et al. in view of Carew; and Cook in view of Carew; and further in view of Pigford and Hill et al. (U.S. Patent No. 4,011,055). These rejections are respectfully traversed.

With respect to claim 1, Applicants submit that the prior art of record fails to teach or suggest the unique combination of elements of the claimed invention, including the limitation(s) of “a friction disk for a brake assembly comprising an annular structural core having *at least one sinusoidally-shaped mounting surface*; and *at least one frictional lining disk having a sinusoidally-shaped mounting surface* and a relatively, flat wear surface, *said mounting surface of each frictional lining disk matingly engaging said mounting surface of said structural core.*” (emphasis added)

With respect to claim 18, Applicants submit that the prior art of record fails to teach or suggest the unique combination of elements of the claimed invention, including the limitation(s) of “a friction disk for a brake assembly comprising. . . *a first frictional lining disk having a sinusoidally-shaped mounting surface* and a relatively, flat wear surface, *said mounting surface of said first frictional lining disk matingly and directly engaging said first mounting*

surface of said structural core; and a second frictional lining disk having a sinusoidally-shaped mounting surface and a relatively, flat wear surface, said mounting surface of said second frictional lining disk matingly and directly engaging said second mounting surface of said structural core.” (emphasis added) Accordingly, these rejections should be withdrawn.

Applicants respectfully submit that the prior art of record fails to teach or suggest each and every element of the combination of elements of the claimed invention. The claimed invention provides a unique brake assembly that includes a uniquely shaped structural core and removable friction lining disk(s) not shown in the prior art of record.

The Examiner has alleged that various combinations of the prior art of record render the claimed invention obvious and therefore not patentable. However, the Examiner has not individually discussed each of the primary references other than to refer to these references as teaching or suggesting brake disk assemblies with reusable annular structural cores. With respect to Carew, the Examiner has indicated that the drum brakes of Carew teach or suggest applying similar frictional lining elements to each of the primary references relied upon by the Examiner. These rejections are respectfully traversed.

The Examiner has relied upon the embodiment of FIG. 3 of Carew to show that a subsidiary brake element of friction material for a drum brake includes transverse corrugations (element 16 and 18). The Examiner's position is that Carew's drum brake with transverse corrugations stands for the broader teaching that this type of physical structure, a reusable annular core having transverse corrugations matingly engaging with friction elements (element 17) can also be applied to disk brake assemblies. This position is respectfully traversed as being based solely on an improper hindsight, reconstruction of the prior art of record that is based on the teachings of Applicants own invention.

For example, Carew is clearly directed at drum brakes for automobiles, e.g., although Carew suggests that the drum brakes of Carew's invention are applicable to other vehicles that may employ drum brakes (see col. 4, lines 3-12). However, Carew does not teach or suggest the application of the curved metal core and the curved friction lining elements of Carew to disk brakes. This application of Carew's frictional lining elements (element 17) to a disk brake is merely the opinion of the Examiner as this suggestion does not come from the references themselves. Even if it were the Examiner's position that this motivation would have been implicitly suggested to one of ordinary skill in the art, this position is respectfully traversed as being unsupported by any of

the references of the prior art of record. Applicants request that the Examiner supply actual evidence that supports the Examiner's position that one of ordinary skill in the art would have applied the drum brake components of Carew, after having altered these components to fit within the different structure of a disk brake, to any of the disk brakes shown in the primary references relied upon by the Examiner. Carew does not suggest this alteration and the primary references clearly do not suggest this alteration of the prior art of record to read on the claimed invention.

The transverse corrugations of Carew are relied upon by the Examiner as being the equivalent to the sinusoidally shaped mounting surfaces of the claimed invention. However, this position is respectfully traversed. As described by Carew at col. 2, lines 1-17:

"The main brake element part and that side of the subsidiary brake element part which engages therewith will be formed with complementary irregularities so that when the latter is in position upon the former, *the circumferential displacement of the one with regard to the other will be rendered impossible*; the pressure exerted by the brake element as a whole through the medium of the subsidiary brake element part upon the brake drum merely causing said subsidiary and main parts to engage more effectively one with the other."

As described by Carew, the irregularities (transverse corrugations 16, 18) are provided to offset circumferential movement of the friction lining element (element 17 in FIG. 3) that is curved along the surface that forms the wear plane, i.e., a problem unique to drum brakes. Since Carew does not teach or suggest any application to disk brakes, the Examiner's contention that the mounting surfaces of Carew would have been applied to the primary references is improper. The individual corrugations of Carew are provided to prevent the curved friction lining element from rotating within the drum or with respect to the curved, metal (thin slipper). When force is applied to one section of the friction lining element, the individual corrugations are provided to prevent the curved friction element from rotating, e.g., shifting circumferentially. The annular structural core and disks of the claimed invention (and the disk brakes of the prior art of record relied upon by the Examiner) are not susceptible to the circumferential movement described by Carew. Therefore, Applicants submit that Examiner's modification of the prior art of record is improper.

The primary references relied upon by the Examiner clearly do not teach or suggest any problems associated with brake disks that would be solved by the alleged modification suggested by Carew. For example, the friction lining material in Hyde et al. ('186), Riebe and Hyde et al. ('006) appear to be of the

clamshell cup, friction type. With respect to Cook et al., the prior art of record does not teach or suggest any known problems with the disk brake assembly shown by Cook. Carew does not teach or suggest the application of sinusoidally shaped mounting surfaces to disk brakes. Therefore, this combination would not have been obvious. Applicants submit that the Examiner's opinion that it would have been obvious to modify the primary references, e.g., such as Cook et al., to include the sinusoidally shaped mounting surfaces is somehow implicitly suggested in the references themselves. Applicants traverse the Examiner's use of Official Notice to attempt this modification based upon an alleged implicit suggestion in the prior art of record. Applicants submit that the only teaching to provide sinusoidally shaped mounting surfaces on the annular core of a disk brake assembly is found in the present application. Therefore, this rejection is improper.

In accordance with the above discussion of the patents relied upon by the Examiner, Applicants respectfully submit that these documents, either in combination together or standing alone, fail to teach or suggest the invention as is set forth by the claims of the instant application.

Accordingly, reconsideration and withdrawal of the claim rejection are respectfully requested. Moreover, Applicants respectfully submit that the instant application is in a condition for allowance.

As to the dependent claims, Applicants respectfully submit that these claims are allowable due to their dependence upon an allowable independent claim, as well as for additional limitations provided by these claims.

CONCLUSION

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but rather to merely show the state-of-the-art, no further comments are necessary with respect thereto.

In the event there are any matters remaining in this application, the Examiner is invited to contact Matthew T. Shanley, Registration No. 47,074 at (703) 205-8000 in the Washington, D.C. area.

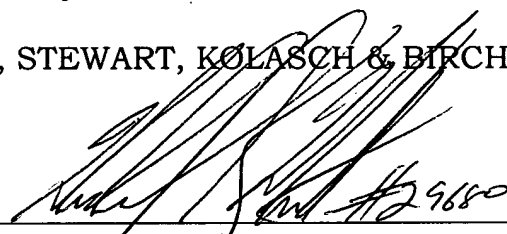
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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